SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Describe the concept of type conversion in Python and explain implicit and explicit type conversion with examples.

17. Explain Lists and Dictionaries with example program.

18. Elucidate Inheritance and Polymorphism with examples.

19. Discuss different types of operations that can be performed on DataFrames, such as merging, joining and concatenation.

20. Explain QuerySets and Managers in Django ORM.

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APRIL/MAY 2025

23PCA13 — PYTHON PROGRAMMING

Time : Three hours Maximum : 75 marks

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SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Write short notes on algorithm.

2. Define an integer and a floating-point number.

3. How can you access individual characters in a string?

4. What is a dictionary in Python? How do you retrieve a value from a dictionary?

5. Delineate the data modeling in object-oriented programming.

6. Mention the main components of a GUI application.

7. How do you create a NumPy array?

8. What is Matplotlib? How do you plot a simple line chart using Matplotlib?

9. Which command is used to create a super user for the Django admin panel?

10. Differentiate List View and Detail View.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Explain the fundamental ideas of Computer Science with examples.

Or

(b) Enlighten the concept of expressions in programming. What are operators, and how are they categorized?

12. (a) Explicate how to access characters and substrings in a string with examples.

Or

(b) Describe how Python manages memory using Namespaces and Garbage Collection.

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13. (a) Explain the concept of Object-Oriented Programming (OOP) in Python with an example.

Or

(b) Illustrate the structure of a simple GUI program in Python using Tkinter.

14. (a) Enlighten the characteristics and advantages of using NumPy arrays over Python lists. Provide examples.

Or

(b) What is a Pandas DataFrame? Explain different ways to create and manipulate DataFrames with examples.

15. (a) Explain the process of installing Django and setting up a new Django project.

Or

(b) Discuss how to create List and Detail Views in Django.